

Watts up?: In which creative ways can you collect assessment points?

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Abstract The overall question that led to this inquiry was: how can I make all of my students feel more motivated to learn physics? In this investigation, I try to find the answer to the sub-question, “How can I increase the power, Watts, of my students so that they feel more like working for physics?” Watts up! To increase this motivation, the use of simple digital tools that playfully test students has been tested.

Personal Identity

I am an enthusiastic, creative, curious and passionate physics and science teacher with thirty years of teaching experience. I teach 14 to 16-year-olds in a secondary school of general education. Matching lessons, learning styles and teaching styles is something I see as a challenge to meet the educational needs of my students. I specialize in Science Technology Engineering and Mathematics (STEM) education. STEM education is about how technology can solve real-world problems [1]. Every lesson should be a (re)discovery for my students, constantly developing their inquiry skills. I am the motivator who uses inquiry questions to teach students to formulate and test hypotheses.

Motivation for this sub-study

Testing and tests take a lot of time, so collecting points in a creative way would be pleasant. So, the goal of this research is to be able to do a creative evaluation and still have points after 50 minutes of class.

Method

The inquiry took place in two classes: 4Eco (8 students) (non-scientific) and 4IW (18 students, rather high-level learners). The students are 15—to 16-year-olds. The survey took place during the physics classes from November to January.

Using their prior knowledge, the pupils were asked the following question: How can your physics teacher evaluate you in other ways than just through testing? You can be creative.

The answers were thoroughly read by the professional learning group (PLC) of colleagues and divided into different clusters. The clusters were then named with an overarching suggestion, and these suggestions were then put into practice.

Data analysis

The answering sheets contained a total of 47 suggestions. In our PLC we have clustered the suggestions. Four clusters were valuable because they also have an impact on inquiry-based learning. These are “conducting and documenting tests at home,” “reward preparations,” “class quiz,” and “collaboration in class.”

Some suggestions were rejected because they are not subject-specific competences: line up on time, be okay and arrive on time.

Actions implemented in the classroom

For “Class quiz”: Wooclap was taken. Also, preparations were rewarded directly to the report sheet, peer feedback was organized, and tests were conducted and documented at home, and rubrics were given. The proposed class action, such as exploration questions by the students by Padlet, was also implemented. However, the most creative way of testing, with the best result, was the use of Bookwidget. Book Widgets leverages technology to enable teachers to enhance and adapt the learning process to the needs of each student. By integrating technology into the classroom, boring lessons transform into interactive and realistic learning experiences, resulting in more motivated students, personalized learning pathways, and a more successful learning experience [2].

Consequences and observations

The students are very motivated to do it well; they even like it. But not all methods are equally good or easy to use; some take too much time or cannot be transformed into points. Using Bookwidgets was the easiest, fairest, and applicable in many areas. It can be used as a remediation but also as an assessment.

General conclusions

Students learned that evaluation does not always have to be boring, it can be playful. It sometimes provoked useful discussions so that students not only acquired more learning material but also guided each other. These are not the easiest or best ways to collect points. Conversion into points remains a difficulty.

Bookwidgets, on the other hand, give good results. They can be used for exercises, quizzes, tests, for creating and preparing lessons, and even for creating rubrics or peer assessments. From "Van motivatie tot groei" by Vansteenkiste [3], I learned that encouraging young people, imparting knowledge, and growing an understanding of problems together with my expertise can lead to enthusiastic learners.

References

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